

Teaching Performance Management Using Behavior Analysis

George B. E. Ackley and Jon S. Bailey
Florida State University

A special undergraduate track in performance management, taught using behavior analysis principles, is described. The key elements of the program are presented, including the point systems and other reinforcement contingencies in the classes, the goals of the instructional activities, and many of the requirements used to evaluate student performance. Finally, the article provides examples of the performance management projects students have conducted with local businesses.

Key words: performance management, college instruction, undergraduate training, organizational behavior management curriculum

An emerging and exciting area in behavior analysis research concerns the application of fundamental principles of behavior to a variety of performance problems in business and industry settings (Daniels, 1994). Individuals who can analyze and develop practical solutions to common performance problems are in increasing demand in business (Daniels, 1989). The methods of behavior analysis are consistently proving to be effective not only in solving those problems but in supple-

menting the weaknesses of many traditional approaches to managing employees in the work place. With a strong emphasis on systemwide, systematic methods for measuring and monitoring employee performance and for providing feedback and positive reinforcement, researchers and consultants are consistently obtaining significant improvements in employee performance and in businesses' bottom line (e.g., Allison, Silverstein, & Galante, 1992; Brown & Sulzer-Azaroff, 1994; Landau, 1993; Ludwig & Geller, 1991).

Starting with a small seminar course in 1986 and gradually modified in response to increased student interest, demand, and participation, a program has been developed in the Psychology Department at Florida State University to prepare students to conduct thorough analyses and well-designed behavioral interventions in business settings. This article describes several features and goals of that program as well as some of the research students have conducted.

In the performance management track of the applied behavior analysis program, students take a sequence of four classes: Conditioning and Learning, Introduction to Applied Behavior Analysis, Behavior Analysis in Business and Industry, and Special Topics in Performance Management, an advanced-topics course wherein students conduct a performance improvement

We would like to acknowledge the student researchers whose studies were included in this paper. Chris Blocker conducted the study on reducing delinquent accounts in a rent-to-own business; Benae Smart and Bryan Hamilton carried out the study on reducing latency of nurse response in a surgical ward; Martin Gwynn implemented the program to increase secretarial productivity in a law firm.

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Correspondence concerning this article should be addressed to Jon Bailey, Department of Psychology, Florida State University, Tallahassee, Florida 32306-1051 (E-mail: bailey@psy.fsu.edu).

project at a local business. (The latter two courses are described in more detail in this paper.) Directed individual study provides opportunities for students to participate in ongoing projects or conduct their own research. Finally, students are encouraged to take Business Psychology as well as organizational behavior, marketing, and management courses offered through the business school.

The performance management program has three primary goals: (a) to promote the development of a verbal repertoire of the fundamental principles and methodologies of behavior analysis; (b) to prepare students who graduate with a bachelor's degree to go directly into applied settings and to address important performance problems effectively; and (c) to provide skills and experiences necessary for students to become successful graduate students. When students complete the sequence of courses, they know how to specify behavior or performance problems, develop appropriate and reliable performance measures, conduct systematic analyses of performance discrepancies, design and monitor effective interventions, and evaluate many traditional and current approaches to managing employee performance.

Basic principles of management and instruction have been incorporated into the organization of each class, and each operates according to a highly structured point system wherein the class content has been divided into well-defined instructional units. Readings, including chapters from assigned texts and integrated articles contained in the syllabus, are assigned on a weekly basis. Study objectives are provided for all readings and serve as the primary basis for biweekly quizzes. Class lectures are designed to supplement and augment the text, and class exercises designed both to enhance and to test students' understanding of the basic principles of performance management are conducted frequently.

Behavior Analysis in Business and Industry

This introductory course, enrolling approximately 50 students, is designed to expose students to the applicability of basic principles of behavior to performance problems in business settings. The class contains a variety of activities that are used to assess student performance and learning. Different point values exist for each type of activity, and students must meet certain point requirements in each category to earn the grade they want in the class. The various point categories are described briefly below.

Quiz points. Students take 45-min, short-answer, essay quizzes every 2 weeks throughout the semester. The goals of these quizzes are to evaluate both how well students have learned the assigned materials and to shape the proper use of behavioral terminology. Quizzes focus on material from the primary text (Daniels, 1989), assigned readings from other relevant publications (e.g., *Journal of Organizational Behavior Management*, 1977 to the present; O'Brien, Dickinson, & Rosow, 1982), class lectures, and any class assignments. Questions on each quiz require students to identify, describe, and apply fundamental principles to hypothetical problem situations in business settings.

Class points. The goals of class points are to promote timely class attendance, to ensure that students are prepared for class, and to reinforce students for attending to and participating in class activities. As with quiz points, class points generally involve essay or short-answer questions requiring students to apply material they have read or heard during class. Such questions tend to supplement quiz material or are designed to give students preliminary practice and feedback on more difficult or detailed study objectives prior to a quiz. Students can earn class points on an almost daily basis in several ways. Sometimes they take pop quizzes at the beginning of class containing questions

or problems related to readings assigned for that day. In addition, class points questions are presented during the middle or at the end of class and cover lecture materials. Finally, some class points are provided for more extensive homework assignments turned in at the beginning of class.

Bonus class points. Students are also provided with a limited number of opportunities to earn bonus class points by writing brief comments and/or analyses of newspaper or magazine articles. Each article must pertain to performance in business settings, and written comments provide a summary of the article and either describe how the article demonstrates the application of behavioral principles or describe how behavioral principles could be applied to address the problem. The goals of bonus exercises are to give students opportunities to make up missed class assignments and to give them additional practice in analyzing common problems and applying behavioral principles.

Business interview. Each student is required to interview an owner, supervisor, or manager of a local business to obtain that person's perspective of the business and common employee performance problems. The primary goal of doing a business interview is to teach students skills necessary to contact and negotiate with a business in order to get permission to conduct a performance improvement project. As part of preparing students for the interviews, sets of guidelines are provided and discussed in some detail during class. These guidelines focus on the following: recommendations for making contacts, tips regarding how students should present and conduct themselves during the interview process, numerous sample questions for use in the interview, and general guidelines for obtaining the information required for conducting a preliminary analysis of one or two critical performance problems.

Upon completion of the interview, students are required to submit a report

focusing on one or two of the most important problems identified during the interview. The reports contain a brief description of the business, the nature of the job of the person interviewed, and a thorough analysis of each performance problem, including the following: a specific description of the performance problem; an analysis of the problem from a performance management perspective (i.e., identify important antecedents, behavior, and consequences affecting the problem performance); and a description of how the student would use performance management principles to address the problem in a practical, efficient way. Evaluations of the written reports focus on the quality of the analyses (i.e., the completeness of the information reported as well as the degree to which students appropriately use performance management principles both to analyze each performance problem and to discuss possible ways of intervening to improve performance) and the quality of presentation (i.e., mechanical, grammatical, and syntactical presentation as well as clarity of description).

One of the most valuable activities in the class, according to many students, involves the subsequent class discussion of the business interviews. The students are grouped according to the type of business interviewed, and group members are given a few minutes each to discuss some of the performance problems they encountered during their interviews. Then each group picks one or two prevalent problems to analyze and discuss possible interventions. Finally, each group leader presents a general list of common problems encountered as well as the group's analysis and prospective solution for one performance discrepancy. The primary value of the activity, according to student reports, relates to the exposure to the kinds of experiences others had in the interview process, the commonality of types of performance problems across businesses, and, most importantly, the applicability of behavioral principles to a wide va-

riety of performance discrepancies and work environments.

Business projects. These projects are required for students who wish to earn an A in the introductory course, and students can work on the projects individually or in pairs. Approximately half of the students choose this option. Typically students negotiate with the managers they interviewed to collect data on a specific, important performance problem. Students then work with the instructor to design a practical and reliable measurement system for the targeted performance. In some cases, this may require students to design data-collection and summary-records forms; however, in other cases, the business may already be collecting the necessary data. In either case, students negotiate a means of getting the data they need and develop procedures for assessing the reliability of the data. In addition, they work with the instructor to develop the most efficient means of presenting their data graphically.

Evaluations of class projects are based on two primary performance requirements. First, students write a performance improvement plan. The paper provides a detailed description of the data that have been collected and the intervention that students would propose. Emphasis is placed on the identification of efficient and practical interventions the manager(s) and/or employee(s) could ultimately be capable of conducting themselves once the project is finished. A sample paper containing an outline of topics the paper must cover, the content or focus of each section, and examples of APA publication guidelines has been prepared to guide students in writing their papers.

Finally, a brief class presentation is required and, indeed, serves as an important part of the overall project grade. The goal of the presentation is to give students experience in efficiently organizing and presenting their work. Each presentation contains the following primary components: a description of the business and the target

performance, a description of the measurement system and any data-collection forms used, a description of the reliability procedures and reliability data, and a presentation of the data with an analysis of what the data indicate. Students are also asked to provide a brief description of their proposed interventions.

Special Topics in Performance Management

The special topics class is offered in the semester immediately following the introductory class. Entry into the advanced class is contingent on the following: earning a grade of A in the introductory class, the quality of the project students did in the introductory class, and an interview wherein students are asked to discuss their projects, educational goals, and interests. Only students who have demonstrated themselves to be highly motivated, competent performers are admitted.

The course structure is similar to the introductory class in terms of frequent quizzes and class assignments. However, two primary differences exist. First, the class operates more like a graduate class. The lectures are less structured, and students are given greater responsibility in the conduct of class discussions. Moreover, the discussions focus on more advanced, specialized issues in the areas of business consulting and performance improvement in the workplace. Different combinations of texts have been used in the past (e.g., Boyett & Conn, 1988; Frederiksen, 1982; Gilbert, 1978; Walton, 1986). Again, the discussions have tended to be structured around sets of study questions and objectives, with some being generated by the students.

Second, the primary emphasis of the advanced class concerns the design and implementation of a performance improvement program in a local business setting. Students entering the class are expected to have already accomplished the following: contacted a business setting and received permission to do a

project, identified an appropriate performance problem, designed an appropriate data-collection system, and established a stable baseline. Throughout the term, students work closely with the instructor and graduate assistants on designing an intervention, handling problems with observers or managers, monitoring and interpreting data, and making program changes as needed. Again, students are required to write papers and do in-class presentations summarizing their work.

Students are given a handbook, developed with the assistance of students who have completed the course, for conducting a successful performance improvement project. The handbook contains a comprehensive set of questions, queries, guidelines, prompts, and suggestions designed to increase the likelihood that projects will be successful. These include structured approaches to finding a suitable setting for conducting a project, selecting a target behavior, analyzing the performance problem, setting up a measurement and data-collection system, designing and evaluating an intervention, and presenting the project and data for various audiences.

Toward the end of the advanced classes in 1993 and 1994, students have held half-day conferences in association with the Society for Performance Management, a student organization established for the purposes of discussing and participating in performance management research. During the conferences, students from the advanced class presented posters or short presentations of their research projects. Consistently, students have indicated that the opportunities to present their work, answer questions about what they have done, and get some additional feedback from prominent figures in the field are among the most challenging and reinforcing aspects of participating in the conference.

Program Outcomes

Over 60 students have completed the entire performance management track

of four courses and have gone on to experience success at a number of different levels following graduation. Approximately 30 have used their projects to demonstrate their ability to analyze and solve important performance problems to potential employers and have gone directly into management trainee positions. Five have participated in internships. Another five students have attempted to establish their own consulting firms, and one student was able to go directly into a consulting position. Approximately 10 students have gone on to graduate programs in behavior analysis. One student has published an article describing the program, some of its activities, and several student projects in *Performance Management Magazine* (Batchelor, 1994).

Student projects have addressed a wide variety of performance problems in an equally broad number of settings. The following summaries are representative of the kind of work undergraduates in the program have done.

Feedback with account managers in a rental store. One student conducted a study at a family-owned store specializing in rent-to-own appliances and furniture. The store manager indicated that a substantial number of customers did not keep up with their monthly payments, and the two account managers were not persistent in pursuing payments on delinquent accounts. The account managers were required to place calls to the customer or send delivery personnel to the customer's home for information about the delinquent payment. Following an 8-week baseline, a large graph containing the end-of-the-week percentages of delinquent accounts for each account manager was posted in the store manager's office in a highly visible location. In conjunction with the weekly data, the manager also provided verbal reinforcement for improvement as well as intermittent praise for behavior related to pursuing delinquent accounts.

As indicated in Figure 1, the data were very stable during baseline, with delinquent accounts averaging 45% of

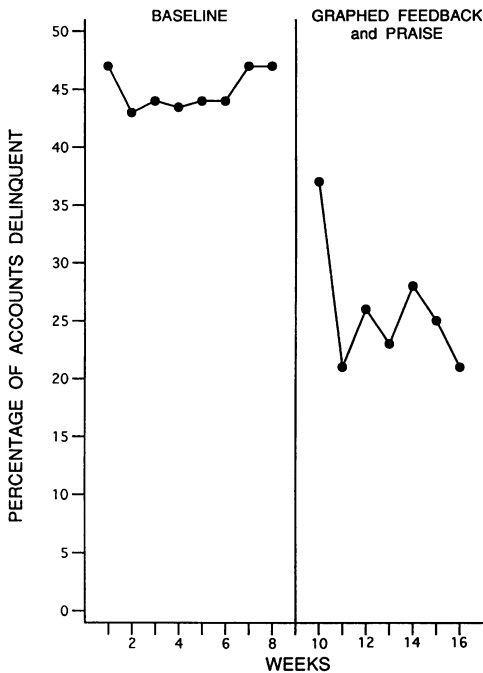


Figure 1. Weekly delinquent accounts expressed as a percentage of the total accounts at the rent-to-own store under baseline and feedback conditions.

the total. With graphed feedback and intermittent praise, delinquent accounts dropped to an average of 26%, with both account managers exhibiting almost identical improvements in performance. During baseline, the average monthly income for the store was \$35,000; during the 2-month intervention period, the average monthly income increased to \$51,000. According to the manager, the \$16,000 per month improvement was due almost exclusively to the additional money collected.

Reducing the response latency of nurses. Two students conducted a study in the postsurgical ward of a local community hospital to address the latency of nursing staff responses to patient requests for help. The nursing supervisor indicated that prompt responses to requests could affect a patient's comfort level, willingness to cooperate with treatment, and, in some cases, the success or failure of treat-

ment. On the ward, the unit secretary was responsible for screening patient calls and directing them to the appropriate nurse or nurse technician. Observers, who sat near the nurses' station, used stop watches to record four measures of response latency to patient requests: *desk-to-patient latency*, or the time between the patient's pushing the call light and the unit secretary's response to the call; the time between the unit secretary's paging of nursing staff and the nursing staff's entry into the patient's room, with separate *nurse latency* and *technician latency* being recorded. Finally, the *total latency* from the patient's call to staff entry into the room was also recorded. The majority of the data were collected between 11:00 a.m. and 2:00 p.m. because patient demands tended to be at their peak during this period.

The intervention involved a general task-clarification procedure. Formal memos from the nursing supervisor, describing the importance of decreasing response time to patients, were posted on the bulletin board in the nurses' lounge.

As indicated in Figure 2, only 30% of the total response latencies to patient requests during baseline met a 2-min standard, with the average response latency being 6 min 44 s. After the intervention, 70% of the responses to patient requests met the 2-min standard, with the average being 1 min 55 s.

Increasing assignment completion in a law firm. Another student conducted a study to improve the productivity of a secretary in a legal firm. The experimenter and manager developed a checklist specifying the tasks to be completed and the criteria for their completion (e.g., the volume of work to be performed and/or the time requirement for completion of specific tasks); point values or weightings were assigned to each task, with higher priority responsibilities being given greater value. During baseline, the manager and experimenter used the checklist to evaluate the secretary's performance independently. The rating for each task

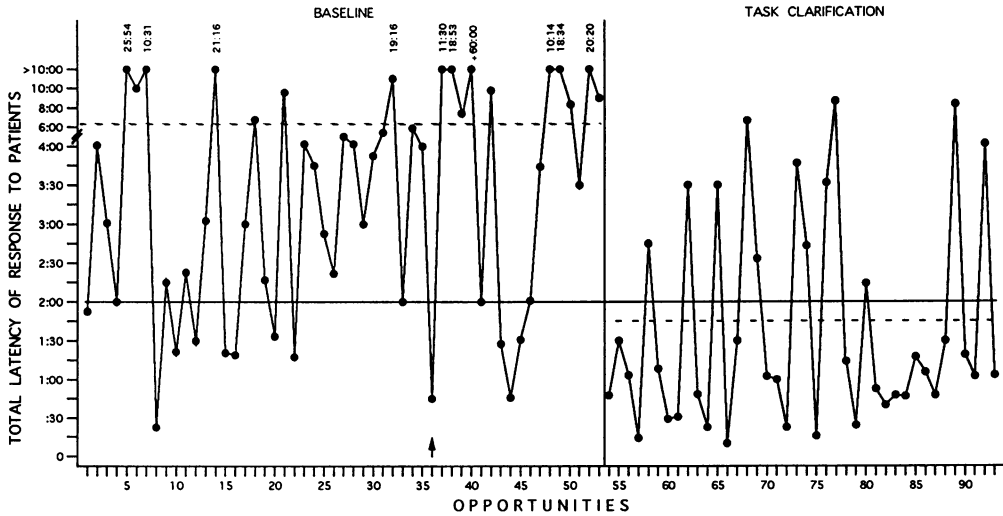


Figure 2. Total latency of response to patient calls for assistance in the postsurgical ward of the hospital. The 2-min goal is indicated with a solid horizontal line. Dashed horizontal lines indicate mean latency during each condition. The arrow indicates a staff meeting wherein response latency was mentioned briefly as one of several performance issues staff needed to improve.

was multiplied by its assigned weight, and the resultant scores for all tasks were summed to yield a total percentage of assigned tasks performed to criterion. During the intervention, the secretary completed the checklist by entering and rating her own performance. The manager conducted reliability checks, and then reviewed and graphed the data with the secretary at the end of the day. A contingency was also established in which the secretary received 2 hr off on Friday afternoons if she performed to a predetermined

goal. Initially the goal was set at 70%; however, a changing-criterion design was used, wherein the goal was changed to 80% after 4 weeks and to 90% 4 weeks later.

During baseline observations conducted over a 3.5-month period, the secretary performed at an average of 38% (see Figure 3). With the introduction of the time-off contingency for 70% assignment completion, the secretary's performance improved to an average of 80% (range, 73% to 90%). When the criterion was changed to 80%, performance improved to an average of 83% (81% to 86%). Finally, when the criterion was changed to 90%, the mean performance was 92% (90% to 100%).

Other project topics. Student projects have addressed a wide range of problems in diverse settings. These have included promoting safety belt use among supermarket patrons; increasing sales in different retail and department stores; improving delivery accuracy at a university warehouse; reducing response latency among wait-staff in a restaurant; increasing selling behavior in restaurants, yogurt shops, and at a movie theater concession

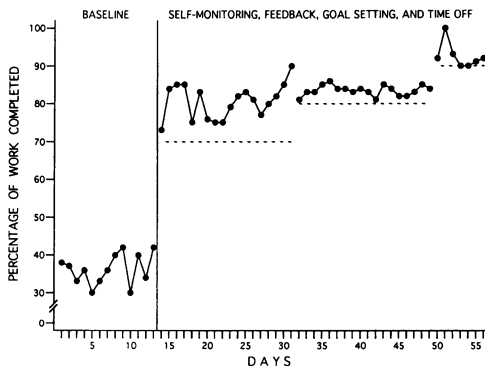


Figure 3. The legal secretary's daily percentage of assignments completed to criterion under baseline and changing-criterion conditions.

stand; improving the quality of interactions between dental staff and patients; reducing waste in a printing company; increasing task completion among staff at a retail comic book outlet, among runners in a law firm, among employees in a university bookstore, among waitstaff in a bar/eatery, and among sales staff in a department store; increasing productivity among workers in a roofing business, among workers in a department store warehouse, in the data entry division of a medical cost-management facility, among shelf stockers in a large grocery store, and among city workers responsible for laying and fixing gas pipes; reducing tardiness and/or absenteeism in several different settings; and improving accuracy of performance in the preparation of patient charge sheets in a nursing home, among cashiers in a retail outlet, and of a bookkeeper in a specialty shop.

DISCUSSION

This special behavior analysis track in performance management exists in a traditional department of psychology with the second author as the "lone behavior analyst" faculty member. Our strategy has been to create a critical mass of behavior analysts involving about 10 masters and doctoral level graduate students in lieu of faculty positions. These talented and hardworking graduate students recruit undergraduates to participate in their research projects and encourage them to take performance management courses. They serve as mentors, supervisors, and, occasionally, teachers of the behavior analysis courses.

Grading class points, quizzes, drafts of student business interviews, project prospectuses, and final reports, and lecture preparation require 3 to 5 hr per week. Another 3 hr are set aside for office hours. Students assume primary responsibility for the organization of the half-day conference in the spring; they gain considerable professional ex-

perience in planning, promoting, and funding such an enterprise.

The local business community has been amazingly cooperative in allowing students to view their operations up close and have benefited directly from the results of the projects. We have encountered very few problems with the projects, and the benefits to students are enormous. No other course in the department has such a hands-on requirement; thus, the performance management track is in great demand and enjoys a strong positive reputation among students. Many develop a powerful commitment to behavior analysis. Students are intrigued by the idea that research findings in behavioral psychology can be used in high-quality teaching and greatly appreciate the behavior analysis techniques that are employed.

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